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THE HISTORY AND CONSTRUCTION OF FORT CARROLL, MARYLAND

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TAU BETA PI
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by
John Andrews, Jr.,

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Summary

First conceived in 1819, and later built beginning in 1847, Fort Carroll, which was to form one of the defensive units of Baltimore City, was built in the center of the Patapsco River, near Sparrows Point. Formed of stone masonry, brick and concrete, it was to carry a heavy armament of from 225 to 350 guns. Due to the changing times and circumstances, it never reached this stage. The fort underwent changes in design so often that it was not until 1900 that it was completed, having even then only 6 guns. Shortly afterwards, being completely antiquated by the advanced methods of warfare, it was abandoned.

The fort was an artificial island in the middle of the river, its stone walls resting on a platform supported on piling, and its interior filled with earth. It was to be built in four stories, but was only completed in one.

Today it is totally deserted. Many ideas have been thought of to put the site to some useful purpose, but nothing has been done. Unwanted even by those who control it, the War Department, what the future has in store for it no one knows.



Fort Carroll

THE HISTORY AND CONSTRUCTION OF FORT CARROLL, MARYLAND

With the progressive development of the science of warfare over a century ago, the then present defenses of the city of Baltimore became rather inadequate for it's protection. As Baltimore was one of the growing industrial and maritime centers of this nation, a means was sought of solving this problem of the defense of the city, and the solution was found in the erection of a fort at the entrance to the Baltimore harbor, in the center of the Patapsco River. This fort was called Fort Carroll, so named in honor of Charles Carroll of Carrollton, one of the signers of the Declaration of Independence, and one of the most famous of Maryland's sons.

Fort Carroll, at the time it was begun, was destined to be one of the best engineering works of it's kind. Had it not been outpaced by the changing trends of warfare, it would have been able to successfully resist the best naval guns of that period. Then too, it's faces look down the channel along which ships must come, and the fire from the guns that would have been on these sides could have raked the ships from stem to stern. It's heavy, thick stone walls could have withstood the poundings of the largest guns, and it's own complement of armament could have sent to the bottom more than one of the attackers. Indeed, from it's appearance, it seems to be one of those stanch piles of the middle ages that have so well stood the tests of time.

As early as 1819, a fort in the lower Patapsco was proposed. At this time, the Board of Commissioners for Reconnoitering the Chesapeake Bay drew up sketches for a fort that was to be built in three tiers and a platform. The artillery for this proposed works was to consist of 159 pieces, to be mostly distributed on the tiers. It was to have garrisoned 835 men in the case of an attack, and of these men, 318 were to be artillerymen. As a peace time establishment it was to garrison 60 men. However, this proposal was not acted upon, possibly because no need was felt for it.

In 1839, Colonel Joseph G. Totten, who was then Chief of Engineers of the U.S. Army again recommended a strongly garrisoned fortress to be erected off of Sollers Point in the Patapsco, as had been proposed in 1819. He pointed out the fact that the only defensive works between Baltimore and the Chesapeake Bay was Fort McHenry. He also went so far as to draw up plans for this fortress, and his plans formed the basis of the design that was finally adopted. This recommendation was made every year until 1846 by Colonel Totten in his annual congressional report.

During this same period, a petition was made to the Senate of the 26th Congress, for the erection of fortifications on the site before mentioned, by several of the leading citizens of Baltimore. All of this probably had the desired effect, for on March 6, 1846, the State of Maryland ceded land on which to erect the fort to the

United States, it being specified that this land was to be used for military purposes only, and Congress appropriated \$30,000 to begin the construction of the batteries.

Preparations were made for beginning the work in 1847, under the direction of Major C.A. Ogden of the U.S. Corps of Engineers. Surveys were made and construction sheds and storehouses were built. On March 1, 1848, the actual construction was begun, and in November of that year, Major Ogden was relieved of the superintendence of the work by Captain and Brevet-Colonel Robert E. Lee.

Some difficulty was evidently encountered in 1849 as to proper ownership and title to the land, for there is a record of the leasing land for the fort, thru Major C.A. Ogden, from one Augustine Taney. From this it might be assumed that Taney thought that the United States had encroached on his water rights and on this basis based his claim. As the records specify the leasing of lands for the fort, it is not to be supposed that what land was leased was any other than that on which the fort was constructed.

Prior to this time, the fort had been called Camp Carroll, but on November 4, 1850, the post was officially named Fort Carroll by the War Department in it's General Order no. 38, Headquarters of the Army.

Every year from 1848 up to 1864, Congress made appropriations to carry on the work. It never appropriated at any one time sums greater than \$100,000, but the total amount that it did authorize for the construction up to

July 2, 1864 was \$1,375,000. Nowhere near this amount was spent on the fort during these years, as reports show up to the end of the fiscal year 1887 only \$1,125,779.18 was used. It is quite probable that the unused money was returned to the U.S. Treasury.

The work was carried on slowly thru the 1850's, with probable interruptions in 1855 and in 1857, when the plans for various parts of the fort were revised. In 1852, Colonel Robert E. Lee was relieved of the construction work to go to West Point as it's superintendent, and he was succeeded by Captain H. Brewerton, also of the Army Engineers. Around 1857, it was decided that to the fort proper a permanent wharf should be added, and the plans for this were drawn and submitted and it's construction begun. Subsequent revisions were made during the following years, and these undoubtedly did not add to the speed of the construction.

After the work had been almost halfway completed, it was found that the whole structure was settling, and on August 5, 1865, orders were given by the Chief of Engineers of the War Department to abandon the project to erect Fort Carroll. There is also another reason to explain the incomplete stage of the forts construction, and that is that much of the stone prepared for it's walls was built into a similar fort, the RipRaps, in Hampton Roads, Virginia.

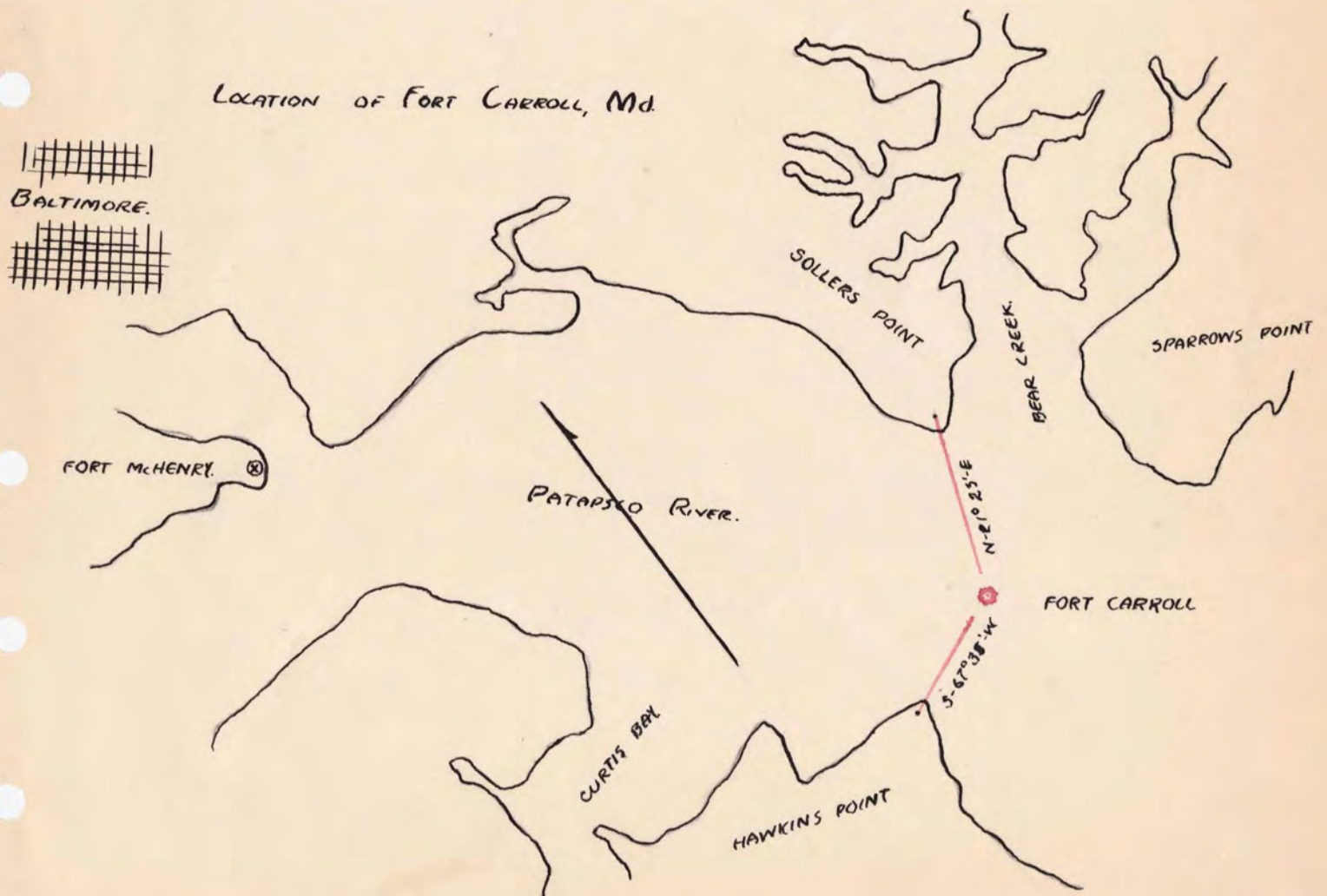
Work, however, did not completely cease. It continued thereafter slowly or intermittently during many years, and the work of the construction changed hands several times, transferring from Captain Brewerton to Lt. Col. Charles

N. Turnbull and then later to Colonel William P. Craighill. During the time that the fort was in charge of Colonel Craighill, and the higher authorities had decided not to build the fort higher in masonry, he suggested that what masonry then stood be covered with earth, that was then being removed from widening and deepening the nearby channel, to the proper thickness, and thus convert the fort into an earthwork. This plan was not accepted as Congress was not then in a receptive mood for doing anything with works of defense, and so Fort Carroll stood for many years in it's incompleteness an eyesore and an object of derision to the passersby who knew nothing of it's possibilities.

The design had been outgrown by the changing trends in military tactics and weapons, and so in 1887, it was proposed to modify the plan of the fort so as to enable it to recieve the heaviest rifled guns of that time, protected by masonry and armor. This work was authorized and the remodeling of the existing work was carried out slowly and was ultimately completed on September 30, 1900, when the fort became one of the garrisoned posts of the United States Army. This date marks the end of any actual construction on the fort as a military work.

Fort Carroll is located in the middle of the Patapsco River, on a bar known as Sollers Point Flats. It lies about six miles from the entrance of that river into the Chesapeake Bay and about four or five miles below the modern city of Baltimore. It is situated about four or four and a

half miles below the historic Fort McHenry, and is from forty to fifty yards from the Craighill channel, the channel that leads to Baltimore. From the map below can be seen it's position in relationship to Sollers Point and to Hawkins Point, those stretches of land that lie nearest to it. The bearings given in this map are taken off of the exact center of the island on which the fort rests, and at this date their precision is to be doubted, as the time at which they were ascertained was in 1849.



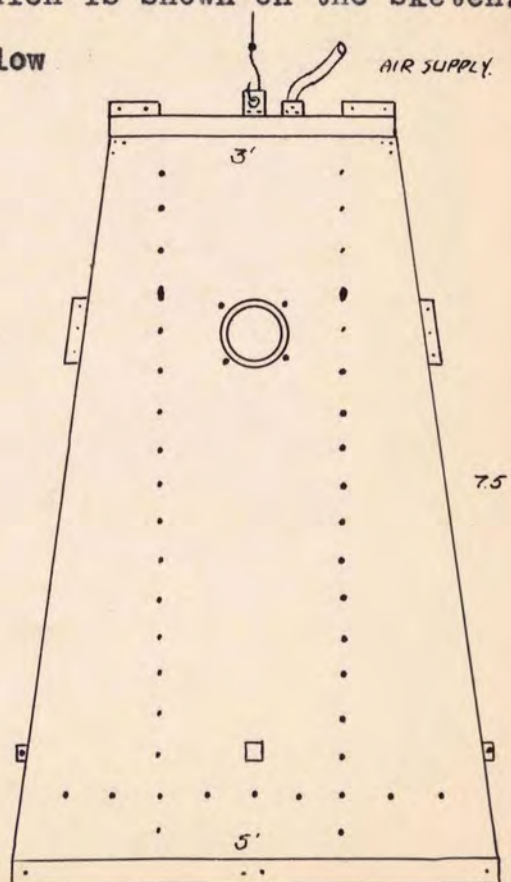
The fort is hexagonal in shape, and is built on an artificially constructed island, in fact, it's walls themselves forming an integral part of the island, being it's boundaries. Occupying 3.4 acres, it was originally intended to have walls approximately 60 feet high and to have from 225 to 350 guns. It was to be built in three teirs in casemates, which are bombproof chambers occupied by cannon, and one teir in barbette, surmounting the three teirs in casemates, a barbette being an open platform or earthen mound on which cannon are mounted. Being arranged in this form gave the fort a great deal of effective fire power. It was for this reason that the fort was so designed, as against the older but more prevalent type of fortification as the bastion type, which was in general one in which the cannon were mounted in the open on projections extending from the main walls of the fort. At this period there was a great deal of controversy raging both in this country and in Europe as to which type of fortifications was the best. The following quotation, taken from an English work on fortifications, by Sir Howard Douglas, and made by M. Montalembert, a French engineer, is in favor of the polygonal system, or German system. It runs, "His observation is, that the safety of places depends on the covered fires which they can oppose to the attack of the works. 'I flatter myself', he says, 'that I have succeeded in gathering together within a small space the greatest fire of artillery and musketry of which any idea can be formed, with apertures so multiplied that the men may breathe with as much freedom as in the open air.It will not be possible to doubt that the

double batteries of guns and the triple batteries of musketry, are so usefully placed in the fortress that they will be capable of destroying and reducing to dust all of the methods of attack that an attacker can form against them: hence the impregnability of such fortress necessarily follows". The essential principle of the Montalembert system is that the artillery of the place should always be superior in number to that of the attackers. For this he proposed to construct, in masonry, vast casemated works, having several stages or teirs of guns completely protected from the fire of the enemy. These facts probably greatly influenced the designer of the fort, as it was to be completely built on essentially this same principle, then so prevalent in western Germany, as for instance, Fort Alexander, at Coblentz.

While the polygonal design was retained, the work was only carried up to above the first teir of casemates, into the second teir. In connection with the subsequent revisions of plan, the second teir was afterwards removed, and from this point the work was converted into a more modern battery. These later batteries were more or less a reversion to the old bastion type of fort, which seemed to spring into new favor after the polygonal system had been found to have many disadvantages under actual warfare conditions. Some of these disadvantages were, first, the angle of fire from the guns was limited, and that the size of the guns was restricted by space requirements, and secondly, the complement of men required to handle these guns was too great to permit efficient operation in the comparatively small enclosures.

As the fort was built in the middle of the river on land totally submerged to a depth of from twelve to fifteen feet, it actually is an island artificially formed. The first step in this construction was the building of the outer walls to form the boundaries of the island. These walls are of granite masonry supported on a wooden grillage at the mud line, which in turn rests on a triple line of piling driven as far as it would penetrate into the underlying gravel, about twenty seven feet. Operations were handled from two construction platforms, one on each side of the wall. The top of these platforms were slightly above the water level and each was supported on three lines of piling driven only into the sand and mud of the river bottom. The masonry of the underwater section of the wall was laid with the aid of the diving bell, the general design of which is shown on the sketch.

This diving bell was a hollow shell without a bottom, of a sufficient size to permit men to work inside. It worked on the principle that the air in the top of the bell was compressed and retained, thus preventing the water from rising in the bell more than a limited extent. This supply of air was constantly replenished by means of a hand air pump. The bell



THE DIVING BELL

itself was raised and lowered by means of a portable, hand operated crane which moved on wooden rails on the working platforms.

The general character of the initial construction as described above, as well as the general form of the fort and island, is shown on the plan on Plate A. It may be added here, as it is not given on the plate, that the length of each side of the fort is 241.5 feet.

The outer wall is of granite masonry, laid in the coursed Ashler^a style, all courses being of uniform two foot thickness. The first seven courses are ten feet wide, and are laid with vertical faces. The next five courses, which brought the wall well above the water line, are of varying width, and the outer face is on a batter of one in two. From this point on, the outer wall is eight feet wide, and is again laid with a vertical face. Above the eighth course, the wall is faced on the inside with a brick and concrete lining. Some details of the wall construction are shown on the sections on Plate B.

After the outer walls had been brought above the water line, initial steps were taken towards filling the enclosed area. Sheet piling of seasoned oak timber was driven adjacent to the inner face of the wall. This was driven to a firm penetration and cut off approximately at the water line. Behind this a platform 62 feet wide and supported on 17 lines of piling was built. All piling was capped with squared timbers on which a solid timber deck was laid. The fill was then made from material dredged from the river bed. The

dredge used in these operations was of a bucket type mounted as a pendulum on a fixed mast on a scow, and was operated by a steam winch. The material for the fill was loaded into mud scows and taken into the the inclosure thru an opening left in the outer wall especially for that purpose. This opening was subsequently closed when the filling had reached a stage permitting this to be done. The height of the finished fill was approximately six feet above the mean low water.

The inner walls and casemates were built directly on the 62 foot platform, and were of brick filled with concrete. Plate C shows in detail the construction of the casemates as originally designed and partially built. The casemates consisted of a series of low vaulted chambers with connecting openings. Each chamber was to be the emplacement of a cannon, which was to fire thru a loophole in the outer wall. Photo 1 shows a view looking thru one of these casemates. Attention is called to the heavy thick walls and partitions, and to the concrete slab floors. The floor of the first ^{ie} ~~teir~~ of casemates as built coincided with the finished level of the interior fill. In this view, at the end of the series of chambers, can be the loophole in one of the chambers at the angle of the two walls. In the intersection of all the walls, which were all exactly the same with the exception of the side on which were the barracks, was a circular staircase, leading to the upper teirs, as can be seen in Photo 2. Immediately in back of these stairways were the magazine chambers, where powder and shot were stored. These rooms are totally enclosed except for one small arched doorway, and were provided with slate slabs as



Photo 1

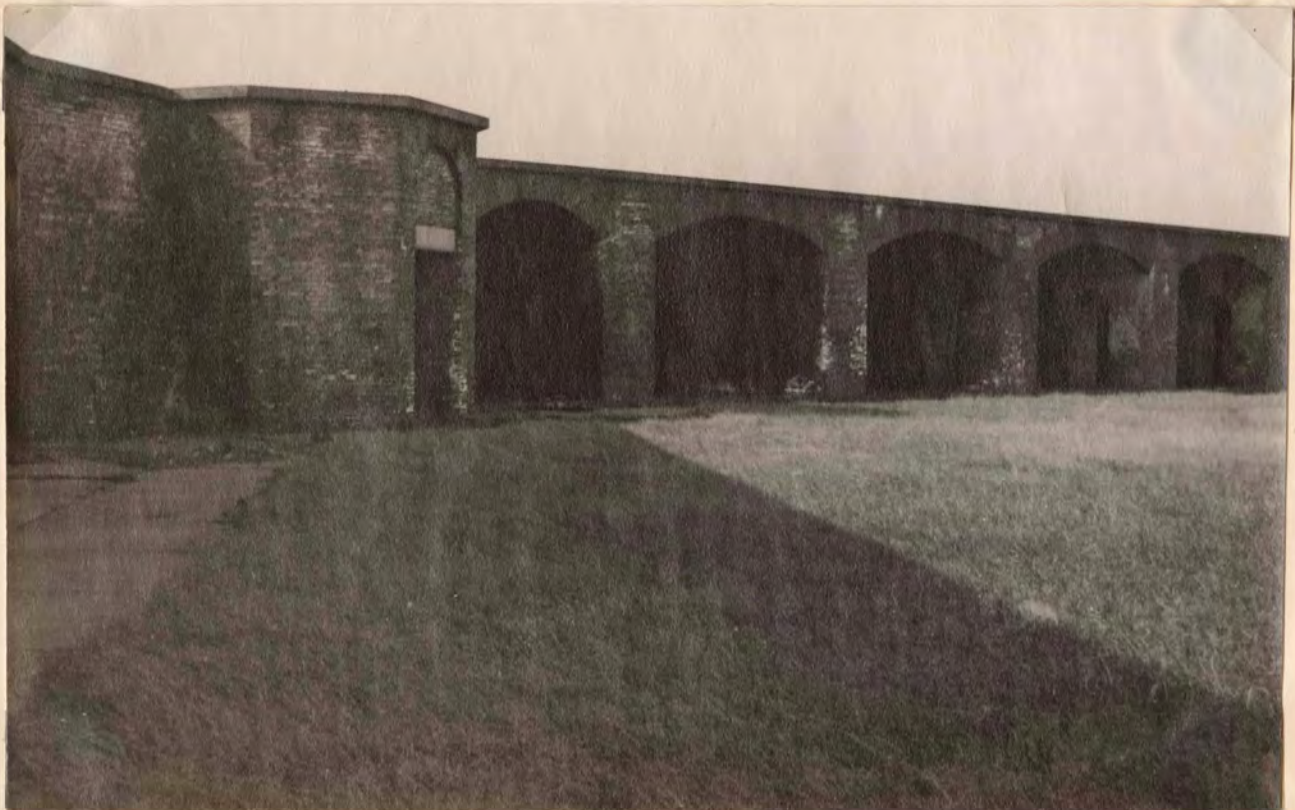


Photo 2

as floors instead of concrete. Ventilation was provided by slits which extended entirely thru the walls with two right angle turns . Several of these rooms can be seen in plan at the ends of the barracks on Plate D. Also shown are the circular staircases and the ventilation slits mentioned.

Photos 3 and 4 show two views of an end casemated chamber. On the left wall of Photo 3 can be seen one of the ventilation slits which led to a room directly on the opposite side of the wall. The remains of a gun track can be seen on the floor toward the rear of chamber, the loopholes, one of which is shown in Photo 4, are immediately to the right of this track. These loopholes were provided with iron shutters that could be closed when desired. Photo 3 also shows the high grade of brickwork, all the walls and partitions of the casemates being laid in English bond.

ENGLISH BOND.

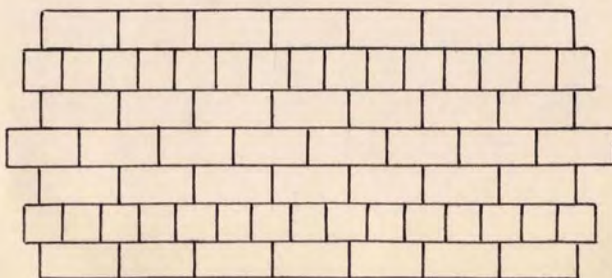


Photo 3



Photo 4

One side of the fort formed the barracks, as shown on Plate D. The main entrance to the fort led thru this side. As originally designed, the first floor of the barracks was to contain the storerooms, the washing and ironing rooms, the kitchens, and several bedrooms. Mess rooms were to be on the second floor, while the third and fourth floors were to be mainly given over as sleeping chambers. Photo 5 shows the interior wall of the first floor of the barracks, with the main entrance in the center. A view leading thru the entrance to the outside is shown in Photo 6, and the main entrance gateway also shown in Photo 7 from the landing wharf.



Photo 5

Interior walls and partitions of the barracks were also of brick, but of a much lighter construction. The wall facing the interior of the fort as shown in Photo 5 was laid in Flemish bond. The drainage from the interior of the fort was conveyed thru piping to a series of six sewers which were built under the barracks, and passed thru openings into the outer wall. A section thru one of these sewers is shown on Plate B.

A wharf was provided opposite the main gate as a means of entry into the fort. This wharf was a masonry platform, about 25 feet square, built on piling in the same

FLEMISH BOND.

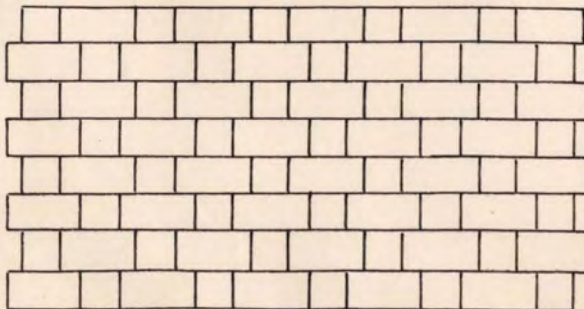


Photo 6



Photo 7

manner as the fort. It was connected with the entrance gate by a hinged wooden gangplank that could be dropped when necessary. Photo 8 pictures the wharf and the side of the fort containing



Photo 8

the barracks, and Photo 7 also shows where the wooden gangplank was to be.

It is not altogether clear as to how the fort was to be supplied with water, but at some time or another an artesian well was bored in the center of the fortress and there were also provided what appears to be cisterns located below the floor level in several of the barrack chambers. These were evidently built after this portion of the fort had been completed, for there are signs of the floors removal. There were also installed sometime later than the building of the casemates three water tanks in one of the casemated sides. The cisterns were probably used for washing water and



Photo 9



Photo 10

the tanks for drinking purposes. The artesian well was not to be used except in the case of an emergency. Photos 9 and 10 show views of the cisterns and of the water tanks.

As has been previously mentioned, the original work was never carried beyond the second tier of casemates, and in 1887, when decision was made to modify the existing structure, all of the masonry above the first tier was removed on all except the two southern sides, and a layer of asphaltic material was spread over the roof of the first tier. On the two southern sides of the fort, the masonry was removed down to the fourteenth course of outer wall. All of the stone that was taken off was deposited in the river immediately in front of the walls. On the two southern sides the mountings for three batteries were built. Each of these batteries contained two guns, one with 12", one with 5", and one with 3" cannon.

Galleries and magazines were built below the 12" gun emplacements, construction being in brick and concrete

with steel and concrete arched roofs. The exterior faces of the galleries are of stone masonry. Provisions were made for handling ammunition by the use of overhead tramways and elevators to the gun platforms.

Plate E shows in detail the construction of the 12" gun battery. A concrete parapet 6.5 feet high was built in front of the gun platforms and the space between these parapets and the outer wall was filled with dredged material. Photo 11 is the front of the 12" battery viewed from the interior of the fort. The connecting upper gallery between the two guns in this battery is shown in Photo 12. It is on this gallery that the ammunition was delivered from the elevators, which were loaded from the lower gallery which is shown in Photo 13. This is taken thru the passageway between the ammunition chambers on the left and the elevators on the right.

The two smaller batteries were placed on the side adjacent to the 12" battery, their mountings being much simpler, and they having no provision for the mechanical handling of ammunition. As in the case of the larger battery, the ammunition was stored below the gun platforms, and was carried by hand to the guns up open stairways. The general plan of these batteries, as well as the 12" battery is shown on Plate F.

In addition to the major items of construction as outlined above, a power house, range finders, and other equipment necessary for the proper operation of the fort, as indicated in Plate F, was built.



Photo 11



Photo 12



Photo 13

Although the fort was officially completed on September 30, 1900, and became one of the posts of the United States Army, it was never garrisoned by more than a skeleton force. Within a very few years, it became practically obsolete as a means of coast defense.

In 1905, a revokable license was granted by the War Department to the Department of Commerce and Labor for the occupation of part of the fort by a lighthouse keeper. From this it may be assumed the fort's lighthouse was built at that time, together with a frame building for the lighthouse keepers living quarters.

Evidence of the decreasing importance of Fort Carroll as a military reservation is shown by the fact that in 1908 it became a sub-post of Fort McHenry, and in 1911 a sub-post of Fort Howard. In 1920, it was finally abandoned as a military post. During these years it was occupied by only a few enlisted men acting as caretakers. In March, 1921, the equipment of the post was transferred to Fort Howard.

With the abandonment of the fort, permission was given to the Department of Commerce and Labor, in a revokable license, ^x permission to use the entire reservation for lighthouse purposes. Then the present automatic lighthouse was built, doing away with the need of a lighthouse keeper, and thus leaving the fort completely unoccupied, save for a legendary cat, who was said to haunt the fort for many years. The frame building that was the abode of the lighthouse keeper was destroyed in 1924 by a fire.

On several occasions in the past fifteen years, the War Department attempted to dispose of the property, but due to the stipulation in the original deed of the land from the State of Maryland that the land was to be used for military purposes only, no final action was ever taken to carry this out.

During 1921, Mayor Broening of Baltimore suggested that upon the site of Fort Carroll it might be advisable to erect a large statue of Lord Baltimore, rivaling in size that of the Statue of Liberty in New York. This idea had been conceived earlier, by Mayor Mahool, in 1909. In addition, there was to be a huge electric sign reading "Welcome to Baltimore". However, nothing was ever done about this. Also later was proposed to put a radio station there, but again interest was not aroused.

The fort is a reminder of the changed aspects of warfare. It would have been able, with it's original design, at the time of the design, to be among the most powerful of defensive units. This was demonstrated by the fact that Fort Sumter, in Charleston harbor, a fort very much of the same kind as Fort Carroll, was attacked by the powerful fleet of Admiral Dahlgren in the Confederate War, and was almost totally uninjured. Today, however, it is a different story. No fort of any type is of any value. No mere pile of earth and masonry can today withstand the batterings and poundings of modern aircraft and long range guns. And so it is, with time as with man, progress has been made, and leaves in it's

wake, those relics of the past.

Abandoned for human occupancy, Fort Carroll is occasionally visited by curiosity seekers or picnicians, but during most of the time it shows no signs of any life and, in fact, is the tomb of many land birds driven out over the river during storms. But it still remains in a remarkably good state of preservation and the almost untouched lines of it's masonry bear silent witness to the excellence of it's design from a structural standpoint and the unquestionable high standard of workmanship which was used in it's building.



Panoramic view of Fort Carroll

This is a view looking toward the southern sides of the fort. On the left is the barracks, and on the right the 12" gun emplacements. The small building in front of the gallery on this side is the power house. In front of the barracks, on the ground, are what is evidently part of one of the range finder towers. Far in the distance can be seen Sparrow's Point.

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Legend

- 1 Power House
- 2 Light Ho. Keepers Qrs.
- 3 Squad Room
- 4 Cisterns
- 5 Kitchen & Mess Room

Range Finders

- B' Batt. Towson
 B₁ " Winchester (Armistead)
 B₂ " McFarland "
 M" Mine Field
 T.S. Tide Sta.
 B.M. Bench Mark

Batteries

- Towson 2-12" N.D.
 Heart 2-5" B.P.
 Augustin 2-3" B.P.

FORT CARROLL Baltimore, Md.

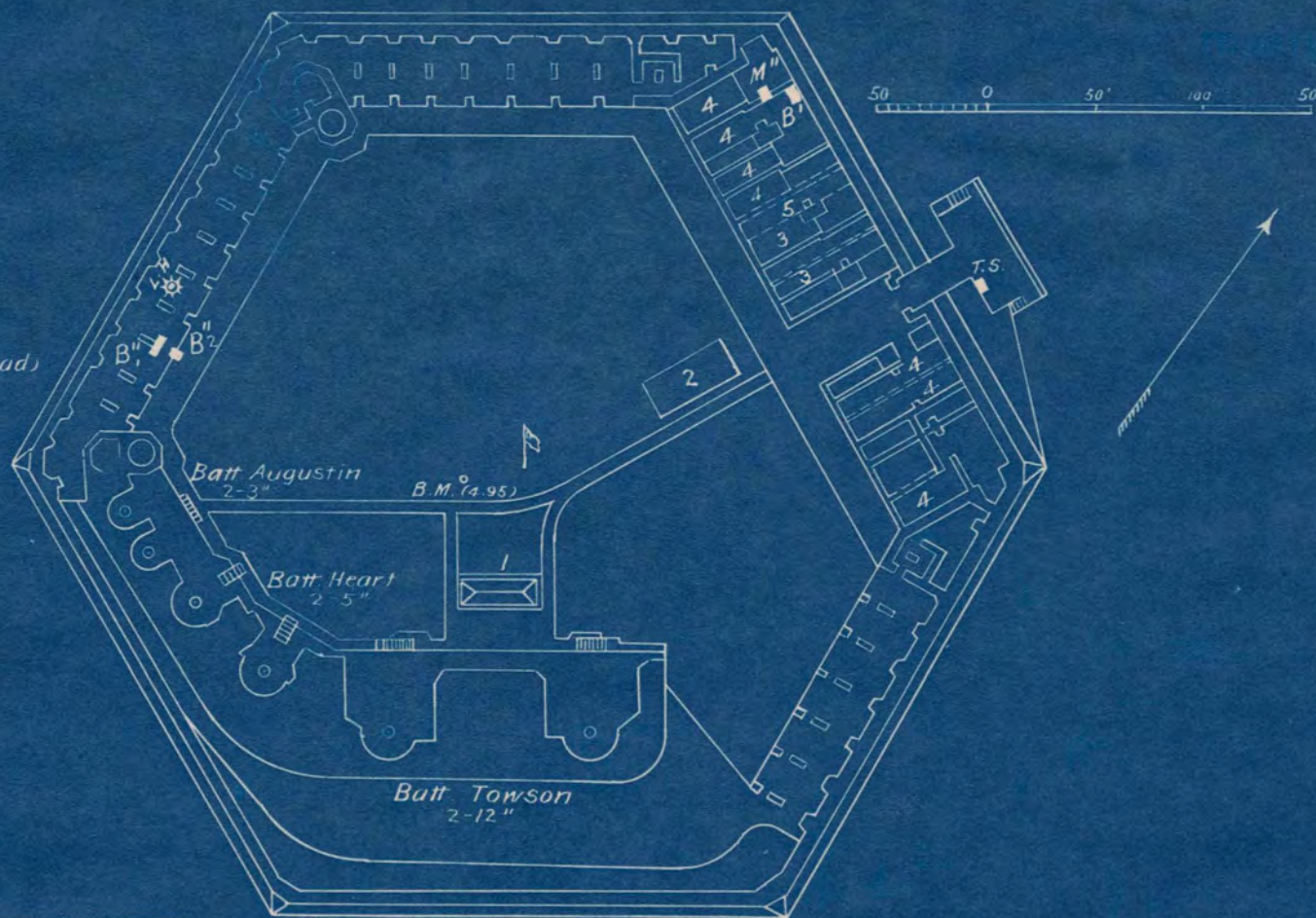


PLATE F

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